

PRC Environmental Management, Inc.
233 North Michigan Avenue
Suite 1621
Chicago, IL 60601
312-856-8700
Fax 312-938-0118

EPA Region 5 Records Ctr.



292023



**PRELIMINARY ASSESSMENT/
VISUAL SITE INSPECTION**

**RESEARCH OIL COMPANY
CLEVELAND, OHIO
OHD 980 795 363**

FINAL REPORT

Prepared for

**U.S. ENVIRONMENTAL PROTECTION AGENCY
Office of Waste Programs Enforcement
Washington, DC 20460**

Work Assignment No.	:	C05087
EPA Region	:	5
Site No.	:	OHD 980 795 363
Date Prepared	:	December 7, 1992
Contract No.	:	68-W9-0006
PRC No.	:	009-C05087OH5W
Prepared by	:	PRC Environmental Management, Inc. (Michael Keefe)
Contractor Project Manager	:	Shin Ahn
Telephone No.	:	(312) 856-8700
EPA Work Assignment Manager	:	Kevin Pierard
Telephone No.	:	(312) 886-4448

RELEASED
DATE 6/6/99
RIN # 639-49
INITIALS WW

ENFORCEMENT
CONFIDENTIAL

EXECUTIVE SUMMARY

PRC Environmental Management, Inc. (PRC), performed a preliminary assessment and visual site inspection (PA/VSI) to identify and assess the existence and likelihood of releases from solid waste management units (SWMU) and other areas of concern (AOC) at the Research Oil Company (Research Oil) facility in Cleveland, Ohio. This summary highlights the results of the PA/VSI and the potential for releases of hazardous wastes or hazardous constituents from SWMUs and AOCs identified. In addition, a completed U.S. Environmental Protection Agency (EPA) Preliminary Assessment Form (EPA Form 2070-12) is included in Attachment A to assist in prioritization of RCRA facilities for corrective action.

Research Oil conducted waste oil recycling operations at the Valley Road facility from 1954 to 1981. Research Oil recycled hazardous and nonhazardous waste oil and oily wastewater from local industries including steel mills and automobile manufacturing plants. In 1981, recycling operations were stopped, and the company moved to a new location at 2655 Transport Road in Cleveland. The Valley Road facility consisted of a tank farm, a laboratory and office building, and a recycling building and associated tanks. These structures were demolished by March 1982, and the facility was filled and leveled. The facility occupies 1 acre in an industrial and residential area. About six employees worked at the facility. Research Oil is the current owner of the facility and the facility is currently used by a neighboring trucking company for truck parking.

In November 1980, Research Oil submitted a RCRA Part A permit application to store hazardous wastes in tanks (S02). In April 1981, Research Oil notified EPA that operations at the Valley Road facility would cease within 180 days and submitted a closure plan. The closure plan was revised in March 1982. EPA approved the March 1982 closure plan in July 1982; however, there was no information in the documents available for the PA file review that described closure plan implementation, closure certification by a professional engineer, or EPA final closure approval.

The PA/VSI identified the following four SWMUs and one AOC at the facility:

Solid Waste Management Units

1. Tank Farm
2. API Separator
3. Sludge Storage Box
4. Waste Oil Recycling System

Area of Concern

1. Oil Seep on the West Bank of Big Creek

RELEASED 4/6/99
DATE
RIN # 639-95
INITIALS 41V

ENFORCEMENT
CONFIDENTIAL

There is no potential for future releases from the four SWMUs identified at the facility. These SWMUs were closed in 1981 when the facility was demolished. SWMU 2 remains on site, partially exposed along the west bank of Big Creek downstream from AOC 1. The past potential for releases to air, soil, ground water, and surface water from the four SWMUs was moderate. Detailed information regarding SWMU operation and release controls is not available. Each of the SWMUs could have contributed to soil contamination associated with AOC 1. The extent of on-site soil contamination is unknown. Therefore, soil borings should be conducted in the areas where the SWMUs were located. Samples should be collected from the borings at varying depths and analyzed for polychlorinated biphenyls (PCB), total petroleum hydrocarbons (TPH), volatile organic compounds (VOC), and metals.

AOC 1 includes an area of contaminated soil and an ongoing release of oil containing PCBs and VOCs to surface water (Big Creek). This AOC is the subject of Final Findings and Orders (FFO) issued by the Ohio Environmental Protection Agency in May 1992. Research Oil is currently implementing tasks outlined in the FFO to remediate the area. Remedial investigations and remedial actions at the facility conducted by Research Oil in compliance with the FFO should continue as scheduled.

Research Oil is located in an industrial area. The nearest receptor is a residential area about 0.25 mile south of the facility. The population of Cleveland is about 527,000. Ground water is not used as a municipal water supply, and there are no ground-water wells within 1 mile of the facility. The municipal water source for Cleveland is Lake Erie. Big Creek, the nearest surface water body, borders the facility on the north and east.

There are no sensitive environments on site. The Cuyahoga National Recreation Area is located 5 miles southeast of the facility. The Cleveland Zoological Park is about 1 mile west of the facility. The nearest wetland is about 0.5 mile west of the facility. Facility access is not controlled.

1.0 INTRODUCTION

PRC Environmental Management, Inc. (PRC), received Work Assignment No. C05087 from the U.S. Environmental Protection Agency (EPA) under Contract No. 68-W9-0006 (TES 9) to conduct preliminary assessments (PA) and visual site inspections (VSI) of hazardous waste treatment and storage facilities in Region 5.

As part of the EPA Region 5 Environmental Priorities Initiative, the RCRA and CERCLA programs are working together to identify and address RCRA facilities that have a high priority for corrective action using applicable RCRA and CERCLA authorities. The PA/VSI is the first step in the process of prioritizing facilities for corrective action. Through the PA/VSI process, enough information is obtained to characterize a facility's actual or potential releases to the environment from solid waste management units (SWMU) and areas of concern (AOC).

A SWMU is defined as any discernible unit at a RCRA facility in which solid wastes have been placed and from which hazardous constituents might migrate, regardless of whether the unit was intended to manage solid or hazardous waste.

The SWMU definition includes the following:

- RCRA-regulated units, such as container storage areas, tanks, surface impoundments, waste piles, land treatment units, landfills, incinerators, and underground injection wells
- Closed and abandoned units
- Recycling units, wastewater treatment units, and other units that EPA has generally exempted from standards applicable to hazardous waste management units
- Areas contaminated by routine and systematic releases of wastes or hazardous constituents. Such areas might include a wood preservative drippage area, a loading-unloading area, or an area where solvent used to wash large parts has continually dripped onto soils.

An AOC is defined as any area where a release to the environment of hazardous waste or constituents has occurred or is suspected to have occurred on a nonroutine and nonsystematic basis. This includes any area where a strong possibility exists that such a release might occur in the future.

The purpose of the PA is as follows:

- Identify SWMUs and AOCs at the facility
- Obtain information on the operational history of the facility
- Obtain information on releases from any units at the facility
- Identify data gaps and other informational needs to be filled during the VSI

The PA generally includes review of all relevant documents and files located at state offices and at the EPA Region 5 office in Chicago.

The purpose of the VSI is as follows:

- Identify SWMUs and AOCs not discovered during the PA
- Identify releases not discovered during the PA
- Provide a specific description of the environmental setting
- Provide information on release pathways and the potential for releases to each medium
- Confirm information obtained during the PA regarding operations, SWMUs, AOCs, and releases

The VSI includes interviewing appropriate facility staff, inspecting the entire facility to identify all SWMUs and AOCs, photographing all visible SWMUs, identifying evidence of releases, initially identifying potential sampling parameters and locations, if needed, and obtaining all information necessary to complete the PA/VSI report.

This report documents the results of a PA/VSI of the Research Oil Company (Research Oil) facility in Cleveland, Ohio (EPA Identification No. OHD 980 795 363). The PA was completed on June 24, 1992. PRC gathered and reviewed information from Ohio Environmental Protection Agency (OEPA) and from EPA Region 5 RCRA files. The VSI was conducted on June 25, 1992. It included interviews with Research Oil facility representatives and a walk-through inspection of the facility. Four SWMUs and one AOC were identified at the facility.

PRC completed EPA Form 2070-12 using information gathered during the PA/VSI. This form is included in Attachment A. The VSI is summarized and seven inspection photographs are included in Attachment B. Field notes from the VSI are included in Attachment C.

2.0 FACILITY DESCRIPTION

This section describes the facility's location, past and present operations, waste generating processes and waste management practices, history of documented releases, regulatory history, environmental setting, and receptors.

2.1 FACILITY LOCATION

The Research Oil facility is located at 3680 Valley Road in Cleveland, Cuyahoga County, Ohio. Figure 1 shows the location of the facility in relation to surrounding topographic features (latitude 41°20'45" N and longitude 81°42'38" W). The facility occupies 1 acre in an industrial and residential area.

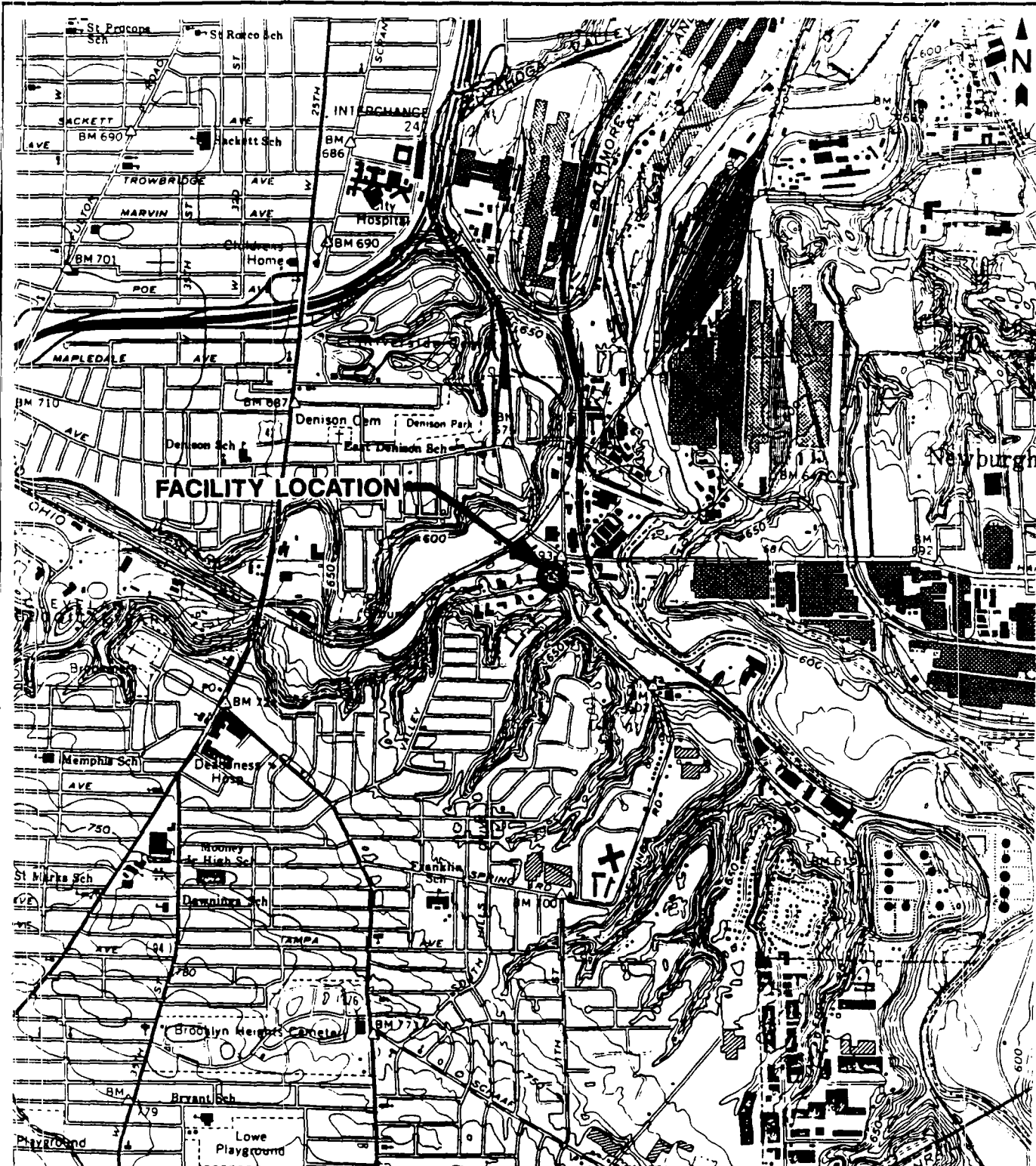
The facility is bordered on the north by Big Creek and residential areas, on the west by Ohio Transport Corporation trucking company, on the south by residential areas and on the east by Big Creek. The Cuyahoga River is 0.5 mile to the east and Lake Erie is 3.8 miles to the northwest.

2.2 FACILITY OPERATIONS

Research Oil conducted waste oil recycling operations at the Valley Road facility from 1954 until 1981. In 1981, recycling operations were stopped, and the company moved to a new location at 2655 Transport Road in Cleveland. The Valley Road facility consisted of a tank farm, a laboratory and office building, and a recycling building and associated tanks (see Figure 2). These structures were demolished by March 1982, and the facility was filled and leveled. About six employees worked at the facility. The facility is currently used by Ohio Transport Corporation to park trucks. Research Oil is the current owner.

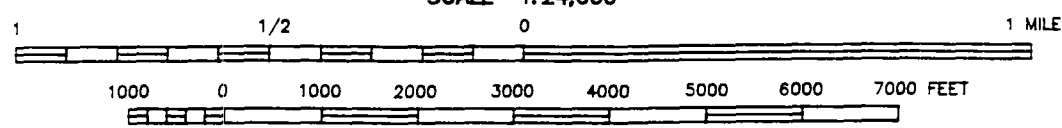
Research Oil recycled hazardous and nonhazardous waste oil and oily wastewater from a variety of local industries including steel mills and automobile manufacturing plants. Much of the waste oil received by the facility was low-grade shop oil or machine oil. Research Oil accepted waste transformer oil from Wing Electric Company from sometime during the 1960s until 1975. More detailed information describing facility operations between 1954 and 1981 was not available.

Solid wastes associated with facility operations and the SWMUs where they were managed are discussed in Section 2.3. Facility operations resulted in soil contaminated with oil and an Oil Seep on the West Bank of Big Creek (AOC 1) adjacent to the facility (see Figure 2). This AOC is discussed in Sections 2.4, 2.5, and 4.0.



FACILITY LOCATION

SCALE 1:24,000



SCALE: 1" = 2,000'



QUADRANGLE LOCATION

RESEARCH OIL COMPANY CLEVELAND, OHIO
FIGURE 1 FACILITY LOCATION
PRC ENVIRONMENTAL MANAGEMENT, INC.

RESEARCH.DWG - 7/14/92 - MLE

SOURCE: MODIFIED FROM USGS, 1984

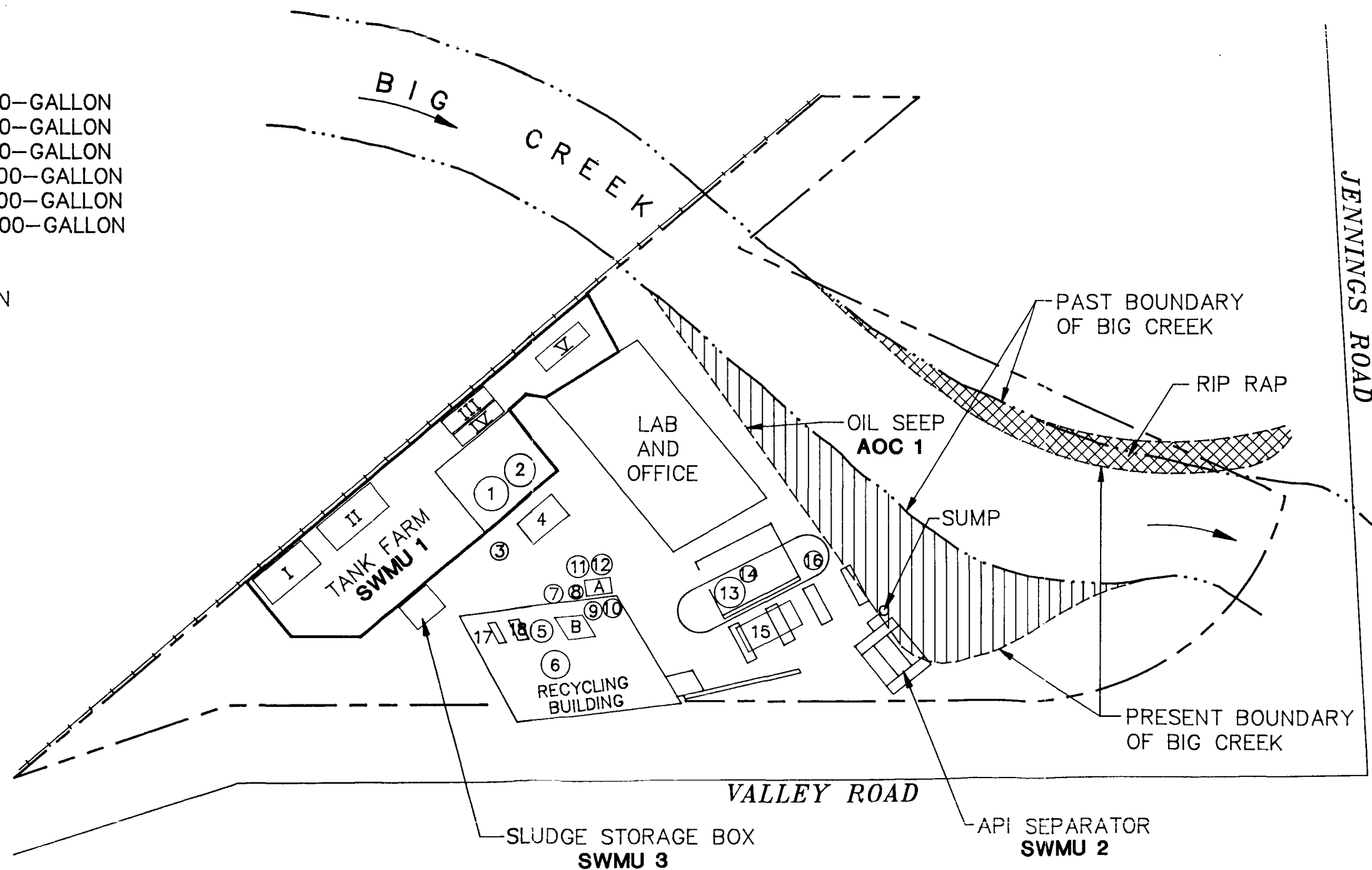
WASTE OIL RECYCLING SYSTEM SWMU 4

1. HEATING 10,000-GALLON
2. HEATING 10,000-GALLON
3. SCREEN 48-INCH
4. CENTRIFUGE
5. HOLDING 2,000-GALLON
6. HOLDING 2,000-GALLON
7. CHEMICAL TREATMENT 1,800-GALLON
8. CHEMICAL TREATMENT 1,800-GALLON
9. CHEMICAL TREATMENT 1,800-GALLON
10. CHEMICAL TREATMENT 1,800-GALLON
11. CHEMICAL TREATMENT 4,000-GALLON
12. CHEMICAL TREATMENT 4,000-GALLON
13. MIXER 2,500-GALLON
14. MIXER 2,500-GALLON
15. OIL HEATER 2,500-GALLON
16. RECEIVER 500-GALLON
17. FILTER PRESS 18-INCH
18. FILTER 18-INCH

- A OIL/WATER SEPARATOR
B OIL/SLUDGE SEPARATOR

WASTE STORAGE TANKS

- I 30,000-GALLON
II 30,000-GALLON
III 15,000-GALLON
IV 10,000-GALLON
V 25,000-GALLON



RESEARCH OIL COMPANY
CLEVELAND, OHIO

FIGURE 2
FACILITY LAYOUT

NOT TO SCALE **PRC** ENVIRONMENTAL MANAGEMENT, INC.

TABLE OF CONTENTS

<u>Section</u>	<u>Page</u>
EXECUTIVE SUMMARY	ES-1
1.0 INTRODUCTION	1
2.0 FACILITY DESCRIPTION	3
2.1 FACILITY LOCATION	3
2.2 FACILITY OPERATIONS	3
2.3 WASTE GENERATION AND MANAGEMENT	6
2.4 HISTORY OF DOCUMENTED RELEASES	9
2.5 REGULATORY HISTORY	11
2.6 ENVIRONMENTAL SETTING	13
2.6.1 Climate	13
2.6.2 Flood Plain and Surface Water	13
2.6.3 Geology and Soils	14
2.6.4 Ground Water	15
2.7 RECEPTORS	16
3.0 SOLID WASTE MANAGEMENT UNITS	17
4.0 AREAS OF CONCERN	21
5.0 CONCLUSIONS AND RECOMMENDATIONS	23
REFERENCES	26

Attachment

- A EPA PRELIMINARY ASSESSMENT FORM 2070-12
- B VISUAL SITE INSPECTION SUMMARY AND PHOTOGRAPHS
- C VISUAL SITE INSPECTION FIELD NOTES

LIST OF TABLES

<u>Table</u>		<u>Page</u>
1	SOLID WASTE MANAGEMENT UNITS (SWMU)	7
2	SOLID WASTES	8
3	SWMU AND AOC SUMMARY	25

LIST OF FIGURES

<u>Figure</u>		<u>Page</u>
1	FACILITY LOCATION	4
2	FACILITY LAYOUT	5

2.3

WASTE GENERATION AND MANAGEMENT

Wastes were generated and managed at various locations at the facility. SWMUs and their status are identified in Table 1. The locations of SWMUs and AOCs in relation to the facility layout are shown in Figure 2. Wastes managed or generated by the facility are summarized in Table 2. Facility generation and management of both hazardous and nonhazardous wastes are discussed below; however, because the facility operations were discontinued in 1981, detailed information describing waste generation and management was unavailable.

Incoming waste oil was stored in five aboveground storage tanks in a diked Tank Farm (SWMU 1) before recycling. Waste oil was transferred in batches from the Tank Farm to process tanks that form the Waste Oil Recycling System (SWMU 4). Recycling processes included heating, chemical treatment (typically with polyelectrolytes, acids, and bases), mixing, gravity separation, filtration, and drying. The locations of these process tanks are shown in Figure 2. The Waste Oil Recycling System was designed with a capacity of 2,000 gallons per hour. About 1.5 million gallons of waste oil were recycled annually (Research Oil, 1992b).

Wastewater generated during recycling processes was treated by an American Petroleum Institute oil/water separator (API Separator) (SWMU 2) before being discharged to the sanitary sewer. Separated oil from the API Separator was returned to the waste oil recycling process. Recycled oil was dried and filtered and then sold as fuel or distilled and filtered for use as lubricants.

Sludges formed during gravity separation, filtration, and other recycling processes were consolidated and stored in a metal Sludge Storage Box (SWMU 3). Between 1970 and 1980, sludges were transported by Research Oil and the Ohio Liquid Disposal Company to lagoons at the Chemical Waste Management site in Vickery, Ohio. Before 1970, sludge transportation and disposal was performed by commercial solid waste disposal companies; however, disposal sites are unknown. The annual sludge generation rate is not known. The hazardous waste characteristics of sludge generated by Research Oil are unknown. Sludge generation ceased by the end of 1980 and the waste was never formally tested or manifested as a hazardous waste (Research Oil, 1992b).

Additional information characterizing wastes generated and managed by Research Oil was obtained from the Part A permit application (Research Oil, 1980). The following waste codes were associated with the hazardous waste oil received for recycling: D001 (ignitable); F003 and F005 (spent nonhalogenated solvents); and F010 (residues from oil quenching baths from metal heat treating operations). Sludge generated by Research Oil was assigned the following two waste

TABLE 1
SOLID WASTE MANAGEMENT UNITS (SWMU)

<u>SWMU Number</u>	<u>SWMU Name</u>	<u>RCRA Hazardous Waste Management Unit*</u>	<u>Status</u>
1	Tank Farm	Yes	Inactive; status of final RCRA closure unknown
2	API Separator	No	Inactive; demolished in 1982
3	Sludge Storage Box	No	Inactive; demolished in 1982
4	Waste Oil Recycling System	No	Inactive; demolished in 1982

Note:

* A RCRA hazardous waste management unit is one that currently requires or formerly required submittal of a RCRA Part A or Part B permit application.

TABLE 2
SOLID WASTES

<u>Waste/EPA Waste Code</u>	<u>Source</u>	<u>Primary Management Unit*</u>
Waste oil/D001, F003, F005, and F010	Off-site industries	SWMUs 1 and 4
Waste oil sludge/unknown	Waste oil recycling processes	SWMUs 2, 3, and 4
Wastewater/NA**	Waste oil recycling processes	SWMU 2

Notes:

* Primary management unit refers to a SWMU that currently manages or formerly managed the waste.

** Nonapplicable (NA) designates nonhazardous waste.

codes: K049 (slop oil emulsion solids) and K051 (API Separator sludge). The Part A permit application also lists K062 (spent pickle liquor), which was used during recycling to break oil/water emulsions. However, correspondence between Research Oil and EPA indicated that the waste oil recycled by Research Oil was exempt from RCRA; therefore, the D001, F003, F005, and F010 waste codes were not applicable (Research Oil, 1981b; EPA, 1981a). Research Oil confirmed that spent pickle liquor was occasionally used at the site to break incoming oil/waste emulsions. However, because this waste stream was beneficially reused, it was not subject to RCRA regulations (Research Oil, 1992b; EPA, 1981a).

2.4 HISTORY OF DOCUMENTED RELEASES

This section discusses the history of documented releases to ground water, surface water, air, and on-site soils, at the Research Oil facility.

In January 1964, the Ohio Department of Health (ODOH) noted a "considerable quantity" of oil discharging from the Research Oil facility into Big Creek. As a temporary control measure, ODOH recommended that Research Oil install a baffled oil trap before discharge (ODOH, 1964a). In July 1964, ODOH reported that Research Oil installed a 100-gallon baffled tank on the discharge line to Big Creek and that it was operating properly (ODOH, 1964d).

In September 1969, the Cleveland Bureau of Industrial Wastes (CBIW) reported the discovery of a hole in the API Separator (SWMU 1) below the overflow weir to the municipal combined sewer system. CBIW determined that overflow from the Valley Road sewer was flowing directly into Big Creek. The district sanitary engineer noted that the City of Cleveland was responsible for the release because the city bulkheaded the sewer. Without the bulkhead, the discharge would have entered the sewer system instead of Big Creek (Odeal, 1969). Research Oil fixed the leak within six days of its discovery. The estimated quantity of oil released to Big Creek was 50 to 100 gallons.

In May 1972, the Cleveland Department of Public Utilities (CDPU) reported that runoff from the Research Oil facility and inadequate oil storage capacity resulted in frequent oil discharges into the Valley Road municipal sewer. CDPU recommended that Research Oil increase its oil storage and separation capacity and install treatment for colloids ahead of the separator, if necessary (CDPU, 1972). There is no information in the file indicating whether or not these recommendations were followed.

Research Oil collected ground-water samples from three on-site monitoring wells over a 3-week period in July 1985. The following visual observations were made about the ground-

water samples. Water from well No. 3 was clean; water from wells No. 1 and 2 precipitated a small amount of iron several days after collection; a "partial" oil sheen was present on ground water from well No. 2; and well No. 2 samples had a strong "sewer odor". The ground-water samples were analyzed for volatile organic compounds (VOC) by gas chromatography. No VOC concentrations greater than about 1 part per million (ppm) were observed (Research Oil, 1985).

In August 1991, 10 years after Research Oil ceased operations at Valley Road, representatives from the OEPA Water Quality Planning and Assessment Division observed an oily sheen on the surface of Big Creek emanating from a dark, oily, soil layer on the west bank of the creek. The oily soil layer was approximately 12 feet long, 10 inches thick, and 10 to 12 feet below ground surface (OEPA, 1991a). The west bank of Big Creek is within the Research Oil facility property boundaries (see Figure 2).

An OEPA District Office Investigation Report (Incident No. 08-18-3552) describing the oil sheen on Big Creek noted that OEPA was involved with a similar investigation "sometime before 1985" and that remediation was recommended. No action was taken at that time and low water levels in August 1991 exposed the contaminated soil layer (OEPA, 1991b).

In September 1991, OEPA conducted a site inspection and collected soil samples from the oily soil layer and a surface water sample from Big Creek near the oily soil layer. Analysis of the soil samples showed the following contaminants: 310 ppm polychlorinated biphenyls (PCB); 30,000 ppm total petroleum hydrocarbons (TPH); 40 ppm lead; and other metals and VOCs (including 1,1-dichloroethene; 1,1,1-trichloroethane; toluene; and xylenes). The water sample was analyzed for VOCs and none were detected. Subsequent surface water samples collected by OEPA in November 1991 contained 40 ppm PCBs (OEPA, 1992). OEPA requested plans for a remedial investigation and emergency response from Research Oil within 10 days after receiving the analytical results for the first set of samples taken (OEPA, 1991c).

In response to OEPA's request, Research Oil conducted a site inspection and collected ground-water samples from on-site monitoring wells and soil samples from the oily soil layer (Research Oil, 1991). Analytical results from this sampling event were not available.

In February 1992, Research Oil submitted a permit application to the U.S. Army Corps of Engineers (ACE) to install 50 feet of sheet piling along the west bank of Big Creek to stop the oil release into Big Creek and to curtail erosion. Research Oil planned to fill space behind the sheet piling with a slurry of cement and bentonite, followed by compacted earth fill. This remedial action plan was developed with OEPA and ACE during December 1991 and January 1992 site inspections, respectively (Research Oil, 1992a). However, the remedial action was not

implemented because OEPA denied water quality certification for the piling installation (DOA, 1992).

As a temporary measure, Research Oil installed floating oil booms to contain oil seeping into Big Creek. These booms are replaced every two weeks. During the VSI, an oil sheen was observed on the surface water outside the boom. A Research Oil representative stated that the oil sheen outside the boom originated upstream. In May 1992, OEPA issued Research Oil Final Findings and Orders (FFO) that described tasks required to stop the oil seep and remediate contaminated soil at the facility (see Section 2.5). Research Oil plans to excavate a 20-foot by 20-foot area behind the oil seep. If the source of the PCB-contaminated oil is not located in the excavated area, Research Oil will install ground-water extraction wells and pump and treat ground water at a rate high enough to prevent ground water from reaching Big Creek. Following ACE approval, Research Oil will stabilize the west bank of Big Creek with riprap (Research Oil, 1992b).

2.5 REGULATORY HISTORY

In December 1963, ODOH issued Research Oil a Water Pollution Control Board (WPCB) permit to discharge industrial wastes into Big Creek in accordance with the Water Pollution Control Act (ODOH, 1963). ODOH approved general plans for a proposed industrial waste treatment facility for Research Oil in May 1964 (ODOH, 1964b). In June of the same year, ODOH renewed Research Oil's WPCB permit, with the stipulation that Research Oil complete construction diverting facility wastewater to the Cleveland sanitary sewer system (ODOH, 1964c). Because the facility was no longer discharging into waters of the state, ODOH informed Research Oil in February 1965 that its WPCB permit did not require renewal (ODOH, 1965).

In December 1981, EPA acknowledged receipt of the Notification of Hazardous Waste Activity form for Research Oil (EPA, 1981a); however, a copy of the original notification was not in the documents available for the PA file review. In November 1980, Research Oil submitted a RCRA Part A permit application to store hazardous wastes in tanks (S02) in the Tank Farm (SWMU 1). The S02 process design capacity was 120,000 gallons. The Part A permit application listed the following hazardous wastes: D001, F003, F005, F010, K049, K051 and K062. However, apparently not all these wastes were generated or managed at the facility. Notes associated with these waste codes indicate that (1) D001, F003, F005, and F010 applied to waste oil received by Research Oil for recycling; (2) K049 and K051 applied to sludge generated during recycling; and (3) K062 applied to waste acid generated off site but used by Research Oil to break oil/water emulsions (see Section 2.3) (Research Oil, 1980).

In April 1981, Research Oil notified EPA that operations at the Valley Road facility would cease within 180 days and submitted a closure plan for the entire facility (all storage and process tanks) (Research Oil, 1981a). In July 1981 correspondence with EPA, Research Oil confirmed that the Valley Road facility was an oil recycling plant, not an oil refinery, and referred to a revised closure plan (Research Oil, 1981b). EPA agreed that Research Oil was a recycling facility; therefore, the facility was required to meet interim status requirements for a storage facility, not a treatment facility (EPA, 1981b). There is no further correspondence in the file until February 1982. At this time, OEPA requested from Research Oil copies of a revised closure plan and supplemental information submitted to EPA (OEPA, 1982a).

The earliest version of the Research Oil closure plan in the file is dated March 29, 1982 (Research Oil, 1982). This closure plan briefly describes the facility, the plans for removing waste oil, storage and process tanks, and facility decontamination. EPA approved the closure plan, after a 30-day public comment period, in July 1982 (EPA, 1982). However, there was no information in the documents available for the PA file review that described closure plan implementation, closure certification by a professional engineer, or EPA final closure approval.

Understanding the facility closure is further complicated by statements made by facility representatives during the VSI that the facility was closed, demolished, and filled by March 1982, which was before EPA approved the closure plan. Facility representatives stated that four tanks were moved to the Transport Road facility and the remaining tanks were scrapped. No surface soil was removed from the facility during closure. After all on-site structures were demolished, about 8 to 10 feet of fill material was added to the site, which originally was in a depression. The site was then leveled and covered with asphalt. In addition, a February 1982 OEPA interoffice communication indicates that equipment had already been moved from the Valley Road facility to the Transport Road facility (OEPA, 1982b). Final closure status of the Research Oil Valley Road facility is unknown.

In March 1985, EPA issued Research Oil a Notice of Violation (NOV) for failing to produce on request a Spill Prevention, Control and Countermeasure (SPCC) Plan during a June 1984 facility inspection (EPA, 1985). When EPA inspected the Valley Road facility in June 1984, the facility had been closed and demolished for about 3 years. Therefore, it is not clear why EPA inspected the facility or how the NOV was resolved.

On May 6, 1992, in response to oil seeping into Big Creek, OEPA issued Research Oil an FFO. OEPA determined that contamination of Big Creek from the oil seep constitutes an unpermitted discharge into waters of the state and that the release constitutes a substantial threat to public health or safety or is causing or contributing to water pollution or soil contamination.

The FFO required Research Oil to submit a workplan for the following tasks: containment and eventual removal of contaminated soils near Big Creek; collection of samples to determine the contamination of ground water and downstream water bodies; preparation of a report summarizing actions taken at the site; and preparation of a schedule for performing listed tasks, a Quality Assurance Project Plan, and a Health and Safety Plan (OEPA, 1992). Research Oil plans to submit these documents by mid-September 1992.

2.6 ENVIRONMENTAL SETTING

This section describes the climate, flood plain and surface water, geology and soils, and ground water in the vicinity of the Research Oil facility.

2.6.1 Climate

Average temperatures in Cleveland range from a low of 26°F in January to a high of 72°F in July. The average daily temperature is 50°F. Northern areas nearest Lake Erie are markedly colder than the rest of the area in summer. Precipitation is well-distributed during the year. Average annual precipitation is 35.4 inches, and the 1-year, 24-hour maximum rainfall is 2 inches. The mean annual lake evaporation for the area is about 31 inches. From late fall through winter, snow squalls are frequent and total snowfall is normally heavy.

Of the total annual precipitation, 60 percent usually falls between April and September. Average relative humidity in midafternoon is 60 percent, and the average humidity at dawn is 80 percent. The relative humidity is higher at night than during the daylight hours. The percentage of sunshine is 70 percent in the summer and 30 percent in the winter. The prevailing wind is from the south. Average wind speed is highest in January at 13 miles per hour (NOAA, 1990).

2.6.2 Flood Plain and Surface Water

The nearest surface water body, Big Creek, borders the facility to the north and east. The Cuyahoga River is 0.5 mile to the east and Lake Erie is 3.8 miles to the northwest. Big Creek is used for recreational purposes. The creek flows directly into the Cuyahoga River, which is also used for recreational and industrial purposes.

The facility was in a 100-year flood plain (FEMA, 1978). However, when the facility was closed and demolished in 1981, 8 to 10 feet of fill material was added to the site, leveled, and paved with asphalt. The effect of this site modification on the flood plain or on the direction of surface drainage is unknown.

2.6.3 Geology and Soils

Site-specific geology and soil information is not available. Therefore, regional information is presented.

Cuyahoga County is located in two physiographic provinces: the glaciated Allegheny Plateau of the Appalachian Plateau Province to the south and east, and the Eastern Lake and Till Plains section of the Central Lowland Province to the west and north. The line of demarcation between the two provinces is the Protage Escarpment, which runs northeast to southwest, just north of Cleveland. Topography in the Allegheny Plateau is characterized by mature river valleys, while the Central Lowland topography is controlled predominately by thick glacial deposits. Bordering Lake Erie is the Lake Plain area, a narrow strip averaging 4 miles in width and composed of lacustrine and beach ridge deposits (Leverett and Horn, 1931; White, 1982).

Two general classes of deposits exist: glacially derived, unconsolidated deposits of Quaternary age and consolidated sandstone and shale of Paleozoic age. During the Pleistocene epoch of the Quaternary period, several glaciers advanced and retreated in the region. The last glacial advances and retreats during the Wisconsin stage occurred in two distinct lobes: the Killbuck Lobe to the west and the Cuyahoga Lobe to the east (Leverett and Horn, 1931; White, 1982). Specific glacial units discussed will not be correlated to a specific lobe because several of the units were synchronous deposits and have the same general characteristics.

Associated with the glacial deposits are glacial outwash deposits of sand and gravel that are located predominately in valleys and on valley sides. The majority of the glacial deposits are heterogenous, and they may contain discontinuous lenses and thin sheets of sand and gravel (White, 1982). Glacial deposits in the area range in thickness from 0 to 300 feet. South of the Lake Plain area, the uppermost unit, the Hiram Till, is exposed. The Hiram Till is a clay till that ranges in thickness from 0 to more than 30 feet. The Kent-Navarre Till underlies the previous unit; it is composed of clayey sand and silt that ranges in thickness from 0 to 100 feet. The last Wisconsin age unconsolidated unit in the area is the Mogadore-Millbrook Till, which is also composed of clayey sand and silt (Banks and Feldmann, 1970; White, 1982). Pre-Wisconsin age tills and outwash deposits overlie the bedrock in deep depressional surfaces, such as buried bedrock valleys. The Pre-Wisconsin deposits are discontinuous across northeastern Ohio. These deposits are more than 60 feet thick in parts of Cuyahoga County and provide large quantities of high-grade gravel in the Mill Creek valley (White, 1982).

The bedrock units dip slightly to the south and south-southeast at about 20 feet per mile (Leverett and Horn, 1931). Devonian age bedrock is exposed in the subcrop and along the river

valleys along Lake Erie. Bedrock units become progressively younger to the south. The uppermost bedrock unit is the Sharon Conglomerate of the Pottsville Group of Pennsylvanian age. It is approximately 0 to 150 feet thick. Underlying this unit is the Cuyahoga Group of Mississippian age, which is approximately 160 to 425 feet thick and is composed primarily of blue to gray shale, with alternating beds of sandy shale and sandstone. Underlying the Cuyahoga Group is the Berea Sandstone, which ranges in thickness from 5 to 150 feet. The Berea Sandstone overlies the Bedford Shale, which is composed of firm-to-soft gray siliceous shale, ranging in thickness from 50 to 90 feet. This formation overlies the Ohio Shale of Devonian age, which is more than 400 feet thick. The Ohio Shale formation is predominately black carboniferous shale, with beds of greenish gray shale. Underlying this unit is a series of older Paleozoic era limestones, and sandstones and shales (Leverett and Horn, 1931; Banks and Feldmann, 1970; White, 1982).

The soils in the area around the site are of the Urban Land-Elnora-Jimtown association. This soil association is characterized by broad flats on lake plains, terraces and beach ridges. The soils are nearly level, but there is some undulation. This association is about 45 percent Urban land, 15 percent Elnora soils, 10 percent Jimtown soils, and 30 percent soils of minor extent.

Urban land consists of areas that are covered by streets, parking lots, buildings and other structures that so obscure or alter the soils that identification is not feasible. Elnora soils are nearly level moderately well drained, and coarse textured. They are on lake plains. Elnora soils have moderately rapid or rapid permeability. They have a seasonal high water table at a depth of 18 to 24 inches. Jimtown soils are nearly level, somewhat poorly drained and medium textured. These soils are on terraces and beach ridges. They have moderate permeability and a seasonal high water table at a depth of 12 to 30 inches.

Minor soils in this association are the Chili and Bogart soils on outwash and stream terraces. The Glenford and Fitchville soils are on terraces and in basins of former glacial lakes. The Haskins soils are on terraces and beach ridges.

The main land-use limitations are the seasonal wetness, possible contamination of ground-water, and drought conditions in summer. Most areas have been drained by sewer systems, gutters, and subsurface drains (USSCS, 1980).

2.6.4 Ground Water

Site-specific ground-water information is not available. Therefore, regional information is presented.

The use of ground water in the county is limited to water-bearing formations within the bedrock, to alluvial and glacial outwash deposits found mostly in valleys, and, to a lesser extent, to sand and gravel lenses and sheets associated with the glacial drift. Existing valleys generally contain thick deposits of sand and gravel from glacial outwash. Wells in these deposits can yield up to 500 gallons per minute (gpm). The glacial outwash has an estimated hydraulic conductivity of 10^{-3} to 10^{-1} cm/sec (Bloyd, 1974; Fetter, 1988).

The glacial deposits also may be a source of ground water where the deposits overlie the Ohio Shale, especially where the drift is thick and contains a large percentage of sand (Leverett and Horn, 1931). The hydraulic conductivity for such aquifers is estimated to be less than 10^{-3} to 10^{-2} cm/sec; wells in these units can yield from 25 to 100 gpm (Bloyd, 1974; Freeze and Cherry, 1979). Generally, local ground-water flow in shallow glacial aquifers is controlled by surface topography and discharges into nearby rivers or lakes. The regional ground-water flow in the bedrock is likely to be toward the Appalachian Basin to the south (Bloyd, 1974).

2.7 RECEPTORS

The facility occupies 1 acre in an industrial area in Cleveland, Ohio. Cleveland has a population of about 527,000.

The facility is bordered on the north by Big Creek and residential areas, on the west by the Ohio Transport Corporation Trucking Company, on the south by residential areas and on the east by Big Creek. The nearest residential area is located about 0.25 mile to the south. Facility access is not controlled.

The nearest surface water body, Big Creek, borders the facility to the north and to the east. Big Creek flows directly into the Cuyahoga River, which is about 0.5 mile downstream and east of the facility. Big Creek is used for recreational purposes and the Cuyahoga River is used for recreational and industrial purposes. The facility is approximately 4 miles southeast of Lake Erie.

There are no ground-water wells located within a 1-mile radius of the facility (ODNR, 1992). The nearest well outside the 1-mile radius is unknown. Lake Erie is the municipal water supply source for Cleveland.

Sensitive environments are not located on site. The Cuyahoga Valley National Recreation Area is located 5 miles southeast of the facility. The Cleveland Zoological Park is about 1 mile west of the facility (USGS, 1984). The nearest wetland is 0.5 mile west of the facility (USDI, 1977).

3.0 SOLID WASTE MANAGEMENT UNITS

This section describes the four SWMUs identified during the PA/VSI. The following information is presented for each SWMU: description of the unit, dates of operation, wastes managed, release controls, history of documented releases, and PRC observations.

SWMU 1

Tank Farm

Unit Description: This unit consisted of five aboveground storage tanks: two 30,000-gallon tanks, one 15,000-gallon tank, one 10,000-gallon tank, and one 25,000-gallon tank (see Figure 2). Descriptive information, such as tank types and unit dimensions, is unknown.

Date of Startup: This unit began operating in 1954.

Date of Closure: This unit stopped operating in 1980 and was demolished in 1981. EPA approved a closure plan for this unit; however, there is no evidence documenting final EPA RCRA-closure approval.

Wastes Managed: This unit managed hazardous (D001, F003, F005, and F010) and nonhazardous waste oil. The waste code is not available.

Release Controls: Secondary containment consisted of a 4-foot high concrete dike wall and a concrete base. The integrity of the release controls during the operating life of this unit is unknown.

History of Documented Releases: No releases were noted in the documents available for the PA file review or during the VSI.

Observations: The area where this unit was located was observed. The area was filled and covered with asphalt and is used by a neighboring facility as a truck parking lot (see Photograph No. 1).

SWMU 2

API Separator

Unit Description: This unit was used to separate oil from wastewater generated during waste oil recycling. The dimensions of the unit are difficult

to estimate because most of the unit is buried. Based on observations during the VSI, the unit is about 20 feet by 30 feet by 10 feet. The capacity of the unit is unknown. Wastewater from the Waste Oil Recycling System (SWMU 4) flowed through pipes and troughs to a sump connected to the API Separator. Stormwater runoff and drainage from the tank farm also flowed to the trough network and the API Separator. Separated oil was returned to the recycling process and wastewater was discharged to the sanitary sewer.

Date of Startup: The unit began operating in 1954.

Date of Closure: This unit stopped operating in 1980.

Wastes Managed: This unit managed wastewater from facility recycling operations. No analytical information was available describing this wastewater and it is not known whether or not it was hazardous.

Release Controls: Release controls associated with this unit are unknown.

History of Documented Releases: No releases were noted in the documents available for the PA file review or during the VSI.

Observations: This unit is the only structure remaining at the facility after demolition in 1981. The unit was buried under fill material used to level the site after demolition. However, Big Creek has eroded soil around the unit so that the unit is partially exposed on the west bank of Big Creek, downstream from AOC 1 (see Photograph Nos. 2, 3, and 4).

SWMU 3 Sludge Storage Box

Unit Description: This unit was a metal box of unknown dimensions and capacity.

Date of Startup: The startup date for this unit is unknown.

Date of Closure: This unit stopped operating in 1980 and was removed from the site in 1981.

Wastes Managed: This unit managed oily sludge generated during waste oil recycling operations. The waste code is not available.

Release Controls: Release controls associated with this unit are unknown.

History of Documented Releases: No releases were noted in the documents available for the PA file review or during the VSI.

Observations: The area where this unit was located was observed. The area was filled and covered with asphalt and is used by a neighboring facility as a truck parking lot (see Photograph No. 5).

SWMU 4 Waste Oil Recycling System

Unit Description: This unit consisted of waste oil recycling process tanks located inside and outside the recycling building. Waste oil recycling operations included: heating (two 10,000-gallon tanks); chemical treatment (four 1,000-gallon tanks and two 4,000-gallon tanks); mixing (two 2,500-gallon tanks); separation (centrifuge, two 2,000-gallon tanks, and oil/water and oil/sludge separation); and filtration (various filter presses). Figure 2 shows the location and type of units that comprised this system.

Date of Startup: The unit began operating in 1954.

Date of Closure: This unit stopped operating in 1980 and was demolished in 1981.

Wastes Managed: This unit managed hazardous (D001, F003, F005, and F010) and nonhazardous waste oil and oil/water separation sludge.

Release Controls: Release controls associated with this unit are unknown.

History of Documented
Releases:

No releases were noted in the documents available for the PA file review or during the VSI.

Observations:

The area where this unit was located was observed. The area was filled and covered with asphalt and is used by a neighboring facility as a truck parking lot (see Photograph No. 5).

4.0 AREAS OF CONCERN

PRC identified one AOC during the PA/VSI. This AOC is discussed below; its location is shown in Figure 2.

AOC 1 Oil Seep on the West Bank of Big Creek

On August 23, 1991 the OEPA Water Quality Planning and Assessment Division conducted a field inspection of Big Creek upstream of the Jennings Road Bridge. During this inspection an oil sheen was observed on the surface of Big Creek near a layer of soil saturated with a dark, oily substance (OEPA, 1991b). The oily soil layer was about 12 feet long, 10 inches wide, and 10 to 12 feet below ground surface on the west bank of Big Creek just upstream of the API Separator (SWMU 2) (see Photograph Nos. 2, 3, and 4). How far soil contamination extends behind the exposed area on the west bank is unknown.

The flow of Big Creek was diverted by a riprap embankment constructed by the facility east of Research Oil. This riprap forced the creek to flow more to the south, which increased erosion of the contaminated west bank. The API Separator (SWMU 2) is now exposed and severely undercut as a result of the change in direction of creek flow.

Analysis of soil samples collected during the August 1991 inspection indicate that the following compounds are present:

<u>Compound</u>	<u>Concentration (ppm)</u>
PCBs	310
TPH	30,000
1,1-dichloroethane	0.250
cis-1,2-dichloroethene	2.4
1,1,1-trichloroethane	0.400
toluene	0.080
xylene (total)	0.150

Spent transformer oil from Wing Electric Company that may have been spilled during facility operations is the suspected source of PCBs. It is likely that the soil is contaminated with a composite of waste oils recycled at the facility over its 26 year history and released during the course of facility operations. One potential release source is the troughs used to transport oily wastewater to the API Separator (SWMU 2) sump. This trough also received stormwater runoff and drainage from the tank farm. The long history of the facility, the lack of complete information regarding facility operations and waste management, and the fact that the entire

facility was demolished make it difficult to pinpoint the source of soil contamination. No facility-wide soil survey has been conducted.

The history of AOC 1 since its discovery in August 1991 is described in Section 2.4. During the VSI an oil sheen was observed both inside and outside the floating oil booms installed by Research Oil as a temporary control measure (see Photograph Nos. 6 and 7). Facility representatives stated that the oil sheen on the outside of the boom originated upstream. Research Oil is currently developing a remedial response workplan in accordance with the FFO issued by OEPA in May 1992 (see Sections 2.4 and 2.5).

RELEASED 4/6/89
 DATE 039 599
 RIN # W
 INITIALS W

5.0 CONCLUSIONS AND RECOMMENDATIONS

The PA/VSI identified four SWMUs and one AOC at the Research Oil facility.

Background information on the facility's location, operations, waste generating processes, history of documented releases, regulatory history, environmental setting, and receptors is presented in Section 2.0. SWMU-specific information, such as the unit's description, dates of operation, wastes managed, release controls, history of documented releases, and observed condition, is presented in Section 3.0. The AOC is discussed in Section 4.0. Following are PRC's conclusions and recommendations for each SWMU and AOC. Table 3 summarizes the SWMUs and AOC at the Research Oil facility and recommended further actions.

SWMU 1

Tank Farm

Conclusions:

This unit was closed and demolished in 1981; therefore there is no potential for future releases to the environment. The potential for past releases to soil, air, ground water, and surface water was moderate. This unit had secondary containment; however, the integrity of the containment system is unknown. This unit was a possible source of on-site soil contamination known to exist at the facility.

Recommendations:

Soil borings should be conducted in the former tank farm area. Soil samples should be analyzed for PCBs, TPH, VOCs, and metals.

SWMU 2

API Separator

Conclusions:

This unit was closed in 1981; therefore there is no potential for future releases to the environment. The potential for past releases to air, soil, and ground water was moderate. There were documented releases of oily wastewater to surface water from this unit.

Recommendations:

This unit should be removed from the facility. Soil surrounding the API Separator and soil along the path of the trough serving the API Separator (SWMU 2) should be sampled and analyzed for PCBs, TPH, VOCs, and metals.

RELEASED
DATE 4/6/89
RIN # 639-99
INITIALS MJ

ENFORCEMENT
CONFIDENTIAL

SWMU 3

Sludge Storage Box

Conclusions: This unit was closed and removed from the facility in 1981; therefore there is no potential for future releases to the environment. The potential for past releases to soil, air, ground water, and surface water was moderate. Descriptive information about this unit and its release controls (if any) were unavailable. This unit was a possible source of on-site soil contamination known to exist at the facility.

Recommendations: Soil borings should be conducted in the former sludge storage box area. Soil samples should be analyzed for PCBs, TPH, VOCs, and metals.

SWMU 4

Waste Oil Recycling System

Conclusions: This unit was closed and demolished in 1981; therefore there is no potential for future releases to the environment. The potential for past releases to soil, air, ground water, and surface water was moderate. Descriptive information about this unit and its release controls (if any) were unavailable. This unit was a possible source of on-site soil contamination known to exist at the facility.

Recommendations: Soil borings should be conducted in the former recycling building area. Soil samples should be analyzed for PCBs, TPH, VOCs, and metals.

AOC 1

Oil Seep on the West Bank of Big Creek

Conclusions: This AOC includes an undefined area of soil contamination and an ongoing release to surface water. This AOC is the subject of an FFO issued by EPA in May 1992. Research Oil is currently implementing tasks outlined in the FFO to remediate the area.

Recommendations: Remedial investigations and remedial actions implemented by Research Oil according to the FFO should continue as scheduled.

RELEASED 9/6/99
 DATE 6-3-99
 BY
 INITIALS MV

ENFORCEMENT
 CONFIDENTIAL

TABLE 3
 SWMU AND AOC SUMMARY

<u>SWMU</u>	<u>Dates of Operation</u>	<u>Evidence of Release</u>	<u>Recommended Further Action</u>
1. Tank Farm	1954 to 1980	On-site soil contamination associated with AOC 1	Soil borings should be conducted in the former tank farm area. Soil samples should be analyzed for PCBs, TPH, VOCs, and metals.
2. API Separator	1954 to 1980	On-site soil contamination associated with AOC 1	This unit should be removed from the facility. Soil surrounding the API Separator and soil along the path of the trough serving the API Separator should be sampled and analyzed for PCBs, TPH, VOCs, and metals.
3. Sludge Storage Box	Unknown to 1980	On-site soil contamination associated with AOC 1	Soil borings should be conducted in the former sludge storage box area. Soil samples should be analyzed for PCBs, TPH, VOCs, and metals.
4. Waste Oil Recycling System	1954 to 1980	On-site soil contamination associated with AOC 1	Soil borings should be conducted in the former recycling building area. Soil samples should be analyzed for PCBs, TPH, VOCs, and metals.
<u>AOC</u>	<u>Dates of Operation</u>	<u>Evidence of Release</u>	<u>Recommended Further Action</u>
1. Oil Seep on the West Bank of Big Creek	August 1991 to present	Dark, oily soil layer, oil sheen on surface water, sampling results	Remedial investigations and remedial actions implemented by Research Oil according to the FFO should continue as scheduled.

REFERENCES

- Banks, P.O. and Rodney M. Feldman, 1970. Guide to the Geology of Northeastern Ohio, Northern Ohio Geological Society.
- Bloyd, Jr., Richard M., 1974. Summary Appraisals of the Nation's Ground-Water Resources - Ohio Region, Geological Survey Professional Paper 813-A.
- Cleveland Department of Public Utilities (CDPU), 1972. Letter from Dennis S. Case to Jac Fallenberg, Research Oil, May 8.
- Department of the Army (DOA), 1992. Letter from John Morris to Alan Gressel, Research Oil, March 17.
- Federal Emergency Management Agency (FEMA), 1978. Flood Insurance Rate Map, City of Cleveland, Ohio, Community Panel No. 390104 0025B, Page 25 of 30, August 1.
- Fetter, C.W., 1988. Applied Hydrogeology, 2nd Edition, Merrill Publishing Co., Columbus, Ohio.
- Leverett, Frank and Frank R. Van Horn, 1931. Geology and Mineral Resources of the Cleveland District, Ohio. U.S. Geological Services (USGS), Bulletin 818.
- National Oceanic and Atmospheric Administration (NOAA), 1990. Normals, Means and Extremes.
- Ohio Department of Natural Resources (ODNR) 1992. Letter from Bill Haiker to Laura Dalston, PRC Environmental Management, Inc. (PRC), July 16.
- Odeal, Erwin J., 1969. Investigation of Pollution Along the Cuyahoga River, September 29.
- Ohio Department of Health (ODOH), 1963. Letter from E.W. Arnold to Jac Fallenberg, Research Oil, December 13.
- ODOH, 1964a. Letter from John Richards to Jac Fallenberg, Research Oil, January 24.
- ODOH, 1964b. Letter from E.W. Arnold to Research Oil, May 14.
- ODOH, 1964c. Letter from E.W. Arnold to Jac Fallenberg, Research Oil, June 22.
- ODOH, 1964d. Internal notes regarding Research Oil, July 23.
- ODOH, 1965. Letter from G.A. Hall to Jac Fallenberg, Research Oil, February 10.
- Ohio Environmental Protection Agency (OEPA), 1982a. Letter from Deborah Berg to Alan Gressel, Research Oil, February 1.
- OEPA, 1982b. Interoffice communication from Deborah Berg to Tom Crepeau, February 1.
- OEPA, 1991a. Interoffice memorandum from Bob Davic to Reggie Brown, August 19.
- OEPA, 1991b. District Office Investigation Report, September 11.
- OEPA, 1991c. Letter from Daniel O'Neill to Alan Gressel, Research Oil, December 3.
- OEPA, 1992. Letter with attached Final Findings and Orders from Donald Schregardus to Don Fenner, Research Oil, May 6.
- Research Oil Company (Research Oil), 1980. U.S. Environmental Protection Agency (EPA) Part A Permit Application, November 13.

Research Oil, 1981a. Letter from Alan Gressel to Valdas Adamkus, EPA, April 14.

Research Oil, 1981b. Letter from Alan Gressel to Kathleen Homer, EPA, July 24.

Research Oil, 1982. Closure Plan Outline, March 29.

Research Oil, 1985. Letter from Robert Lohman to James Irwin, OEPA, July 29.

Research Oil, 1991. Letter from Alan Gressel to Daniel O'Neill, OEPA, December 13.

Research Oil, 1992a. Letter from Don Fenner to U.S. Army Corps of Engineers, February 11.

Research Oil, 1992b. Facsimile from Dorothy Ellington to Michael Keefe, PRC, September 10.

EPA, 1981a. Acknowledgement of Notification of Hazardous Waste Activity, December 15.

EPA, 1981b. Letter from Kathleen Homer to Alan Gressel, Research Oil, August 11.

EPA, 1982. Letter from Basil Constantelos to Alan Gressel, Research Oil, July 12.

EPA, 1985. Letter with attached Notice of Violation from Basil Constantelos to Alan Gressel, Research Oil, March 18.

U.S. Department of the Interior (USDI), 1977. Fish and Wildlife Service National Wetlands Inventory, Cleveland South.

U.S. Geological Survey (USGS), 1984. Map of Cleveland South, Ohio, 7.5-Inch Quadrangle.

U.S. Soil Conservation Service (USSCS), 1980. Soil Survey of Cuyahoga County, Ohio.

White, George, W., 1982. Glacial Geology of Northeastern Ohio. ODNR, Division of Geological Survey, Bulletin 68.

ATTACHMENT A
EPA PRELIMINARY ASSESSMENT FORM 2070-12



POTENTIAL HAZARDOUS WASTE SITE
PRELIMINARY ASSESSMENT
PART 1 - SITE INFORMATION AND ASSESSMENT

I. IDENTIFICATION

01 STATE OH 02 SITE NUMBER OHD 004 178 512

II. SITE NAME AND LOCATION

01 SITE NAME (Legal, common, or descriptive name of site) Research Oil Company	02 STREET, ROUTE NO., OR SPECIFIC LOCATION IDENTIFIER 3580 Valley Road				
03 CITY Cleveland	04 STATE OH	05 ZIP CODE 44109	06 COUNTY Cuyahoga	07 COUNTY CODE 035	08 CONG DIST
09 COORDINATES: LATITUDE 41° 20' 45" N		LONGITUDE 081° 42' 38" W			
10 DIRECTIONS TO SITE (Starting from nearest public road) 25th Street (Route 3) south from downtown Cleveland to Broadview Road south to Valley Road east					

III. RESPONSIBLE PARTIES

01 OWNER (if known) Research Oil Company	02 STREET (Business, mailing, residential) 2777 Broadway Avenue				
03 CITY Cleveland	04 STATE OH	05 ZIP CODE 44115	06 TELEPHONE NUMBER (216) 823-8383		
07 OPERATOR (if known and different from owner) Same as owner	08 STREET (Business, mailing, residential)				
09 CITY	10 STATE	11 ZIP CODE	12 TELEPHONE NUMBER ()		
13 TYPE OF OWNERSHIP (Check one) <input checked="" type="checkbox"/> A. PRIVATE <input type="checkbox"/> B. FEDERAL: _____ <input type="checkbox"/> C. STATE <input type="checkbox"/> D. COUNTY <input type="checkbox"/> E. MUNICIPAL (Agency name) <input type="checkbox"/> F. OTHER _____ <input type="checkbox"/> G. UNKNOWN (Specify)					
14 OWNER/OPERATOR NOTIFICATION ON FILE (Check all that apply) <input checked="" type="checkbox"/> A. RCRA 3010 DATE RECEIVED: 12/15/81 <input type="checkbox"/> B. UNCONTROLLED WASTE SITE (CERCLA 103 c) DATE RECEIVED: ____/____/____ <input type="checkbox"/> C. NONE MONTH DAY YEAR MONTH DAY YEAR					

IV. CHARACTERIZATION OF POTENTIAL HAZARD

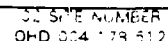
01 ON-SITE INSPECTION <input checked="" type="checkbox"/> YES DATE 06/25/92 <input type="checkbox"/> NO		BY (Check all that apply) <input type="checkbox"/> A. EPA <input checked="" type="checkbox"/> B. EPA CONTRACTOR <input type="checkbox"/> C. STATE <input type="checkbox"/> D. OTHER CONTRACTOR <input type="checkbox"/> E. LOCAL HEALTH OFFICIAL <input type="checkbox"/> F. OTHER: _____ (Specify) CONTRACTOR NAME(S): PRC Environmental Management, Inc. (PRC)	
02 SITE STATUS (Check one) <input type="checkbox"/> A. ACTIVE <input checked="" type="checkbox"/> B. INACTIVE <input type="checkbox"/> C. UNKNOWN	03 YEARS OF OPERATION 1954 1981 BEGINNING YEAR ENDING YEAR <input type="checkbox"/> UNKNOWN		
04 DESCRIPTION OF SUBSTANCES POSSIBLY PRESENT, KNOWN, OR ALLEGED The facility recycled waste oil obtained from local industries. Wastes generated on site include oily sludge and wastewater. Soil at the facility is contaminated with polychlorinated biphenyl (PCB) contaminated oil; however, the extent of contamination is unknown.			
05 DESCRIPTION OF POTENTIAL HAZARD TO ENVIRONMENT AND/OR POPULATION There is an ongoing release of oil into Big Creek from a layer of contaminated soil on the west bank of the creek. Soil samples collected from the contaminated area contain PCBs, petroleum hydrocarbon, and volatile organic compounds (VOC).			

V. PRIORITY ASSESSMENT

01 PRIORITY FOR INSPECTION (Check one. If high or medium is checked, complete Part 2 - Waste Information and Part 3 - Description of Hazardous Conditions and Incidents.) <input checked="" type="checkbox"/> A. HIGH (Inspection required promptly) <input type="checkbox"/> B. MEDIUM (Inspection required) <input type="checkbox"/> C. LOW (Inspect on time-available basis) <input type="checkbox"/> D. NONE (No further action needed; complete current disposition form)			
---	--	--	--

VI. INFORMATION AVAILABLE FROM

01 CONTACT Kevin Perard	02 OF (Agency/Organization) U.S. Environmental Protection Agency		03 TELEPHONE NUMBER (312) 885-4448	
04 PERSON RESPONSIBLE FOR ASSESSMENT Michael Keefe	05 AGENCY	06 ORGANIZATION PRC	07 TELEPHONE NUMBER (312) 856-8700	08 DATE 06 / 25 / 92 MONTH DAY YEAR





POTENTIAL HAZARDOUS WASTE SITE
PRELIMINARY ASSESSMENT
PART 3 - DESCRIPTION OF HAZARDOUS CONDITIONS AND INCIDENTS

I. IDENTIFICATION	
01 STATE OH	02 SITE NUMBER OHD 004 128 812

II. HAZARDOUS CONDITIONS AND INCIDENTS

01 ☒ A. GROUNDWATER CONTAMINATION

02 ☐ OBSERVED (DATE: _____)

☒ POTENTIAL

☐ ALLEGED

03 POPULATION POTENTIALLY AFFECTED: 0

04 NARRATIVE DESCRIPTION

The presence of significant concentrations of PCBs, petroleum hydrocarbons, and VOCs in soil (see item F below) suggests the potential for ground-water contamination. There are not ground-water wells within 1 mile of the facility.

01 ☒ B. SURFACE WATER CONTAMINATION

02 ☐ OBSERVED (DATE: _____)

☐ POTENTIAL

☐ ALLEGED

03 POPULATION POTENTIALLY AFFECTED: _____

04 NARRATIVE DESCRIPTION

Soil saturated with an oily substance has been observed leaching into Big Creek. Surface water samples collected in the area contained PCBs and VOCs.

01 ☐ C. CONTAMINATION OF AIR

02 ☐ OBSERVED (DATE: _____)

☐ POTENTIAL

☐ ALLEGED

03 POPULATION POTENTIALLY AFFECTED: _____

04 NARRATIVE DESCRIPTION

None

01 ☐ D. FIRE/EXPLOSIVE CONDITIONS

02 ☐ OBSERVED (DATE: _____)

☐ POTENTIAL

☐ ALLEGED

03 POPULATION POTENTIALLY AFFECTED: _____

04 NARRATIVE DESCRIPTION

None

01 ☐ E. DIRECT CONTACT

02 ☐ OBSERVED (DATE: _____)

☐ POTENTIAL

☐ ALLEGED

03 POPULATION POTENTIALLY AFFECTED: _____

04 NARRATIVE DESCRIPTION

None

01 ☒ F. CONTAMINATION OF SOIL

02 ☒ OBSERVED (DATE: August 1991 to present)

☐ POTENTIAL

☐ ALLEGED

03 AREA POTENTIALLY AFFECTED: 1
(Acres)

04 NARRATIVE DESCRIPTION

Soil saturated with an oily substance has been observed leaching into Big Creek from the west bank of the creek. The affected area of the west bank is about 12 feet long, 10 inches wide, and 10 to 12 feet below ground surface. The extent of contamination behind the creek bank is unknown. Soil samples contained 310 ppm PCBs, 30,000 ppm total petroleum hydrocarbons (TPH), and some VOCs.

01 ☐ G. DRINKING WATER CONTAMINATION

02 ☐ OBSERVED (DATE: _____)

☐ POTENTIAL

☐ ALLEGED

03 POPULATION POTENTIALLY AFFECTED: _____

04 NARRATIVE DESCRIPTION

None

01 ☐ H. WORKER EXPOSURE/INJURY

02 ☐ OBSERVED (DATE: _____)

☐ POTENTIAL

☐ ALLEGED

03 WORKERS POTENTIALLY AFFECTED: _____

04 NARRATIVE DESCRIPTION

None

01 ☐ I. POPULATION EXPOSURE/INJURY

02 ☐ OBSERVED (DATE: _____)

☐ POTENTIAL

☐ ALLEGED

03 POPULATION POTENTIALLY AFFECTED: _____

04 NARRATIVE DESCRIPTION

None



POTENTIAL HAZARDOUS WASTE SITE
PRELIMINARY ASSESSMENT
PART 3 - DESCRIPTION OF HAZARDOUS CONDITIONS AND INCIDENTS

I. IDENTIFICATION

01 STATE
OH

02 SITE NUMBER
OHD 004 178 512

II. HAZARDOUS CONDITIONS AND INCIDENTS (Continued)

01 ☐ J. DAMAGE TO FLORA

02 ☐ OBSERVED (DATE: _____)

☐ POTENTIAL

☐ ALLEGED

04 NARRATIVE DESCRIPTION

None

01 ☐ K. DAMAGE TO FAUNA

02 ☐ OBSERVED (DATE: _____)

☐ POTENTIAL

☐ ALLEGED

04 NARRATIVE DESCRIPTION (Include name(s) of species)

None

01 ☐ L. CONTAMINATION OF FOOD CHAIN

02 ☐ OBSERVED (DATE: _____)

☐ POTENTIAL

☐ ALLEGED

04 NARRATIVE DESCRIPTION

PCBs leaching from contaminated soil on the west bank of Big Creek into surface water has the potential to bioaccumulate.

01 ☐ M. UNSTABLE CONTAINMENT OF WASTES

02 ☐ OBSERVED (DATE: _____)

☐ POTENTIAL

☐ ALLEGED

03 POPULATION POTENTIALLY AFFECTED: _____

04 NARRATIVE DESCRIPTION

None

01 ☐ N. DAMAGE TO OFF-SITE PROPERTY

02 ☐ OBSERVED (DATE: _____)

☐ POTENTIAL

☐ ALLEGED

04 NARRATIVE DESCRIPTION

Contamination could potentially migrate to off-site properties.

01 ☐ O. CONTAMINATION OF SEWERS, STORM DRAINS, WWTPS ☐ OBSERVED (DATE: _____)

☐ POTENTIAL

☐ ALLEGED

04 NARRATIVE DESCRIPTION

None

01 ☐ P. ILLEGAL/UNAUTHORIZED DUMPING

02 ☐ OBSERVED (DATE: _____)

☐ POTENTIAL

☐ ALLEGED

04 NARRATIVE DESCRIPTION

None

05 DESCRIPTION OF ANY OTHER KNOWN, POTENTIAL, OR ALLEGED HAZARDS

None

III. TOTAL POPULATION POTENTIALLY AFFECTED: 50,000

IV. COMMENTS

The extent of soil contamination at the facility is unknown.

V. SOURCES OF INFORMATION (Cite specific references; e.g., state files, sample analysis, reports)

OEPA and EPA Region 5 files and visual site inspection.

ATTACHMENT B
VISUAL SITE INSPECTION SUMMARY AND PHOTOGRAPHS

VISUAL SITE INSPECTION SUMMARY

**RESEARCH OIL COMPANY
CLEVELAND, OHIO
OHD 980 795 363**

Date: June 25, 1992

Facility Representatives: Don Fenner, Research Oil
Dorothy Ellington, Research Oil
Roger Holcomb, Research Oil

Inspection Team: Michael Keefe, PRC Environmental Management, Inc. (PRC)
David Berestka, PRC

Photographer: David Berestka

Weather Conditions: Cloudy, about 70°F

Summary of Activities: The visual site inspection (VSI) began at 1:00 p.m. with an introductory meeting. The inspection team explained the purpose of the VSI and the agenda for the visit. Facility representatives then gave a brief overview of the facility's history followed by a discussion of the ongoing oil seep on the west bank of Big Creek. Mr. Charles Carter, former superintendent of the facility, joined the VSI at about 2:00 p.m. Mr. Carter discussed past operations at the facility and commented on old facility drawings.

The inspection team observed the oil seep and noticed an oil sheen on the surface of Big Creek both inside and outside the floating oil booms. Facility representatives indicated the approximate location of all former SWMUs. There are currently no structures at the facility. The facility is paved with asphalt, and it is used by a neighboring facility as a truck parking lot.

The inspection concluded with a discussion of the facility's closure plan. The VSI was completed and the inspection team left the facility at 3:00 p.m.



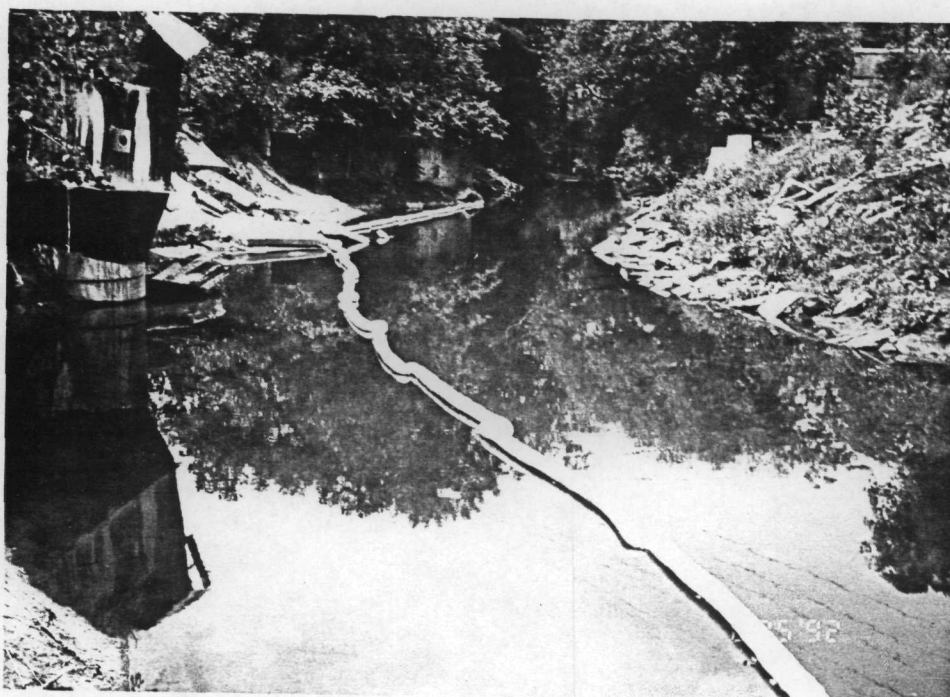
Photograph No. 1

Orientation: Northwest

Description: Approximate former location of the waste oil Tank Farm in background

Location: SWMU 1

Date: 6/25/92



Photograph No. 2

Orientation: Northwest

Description: Big Creek with floating oil booms in center, facing upstream; API Separator (SWMU 2) in upper left corner, oil seep (AOC 1) is just upstream of the API Separator, note vegetated debris on right side of Big Creek.

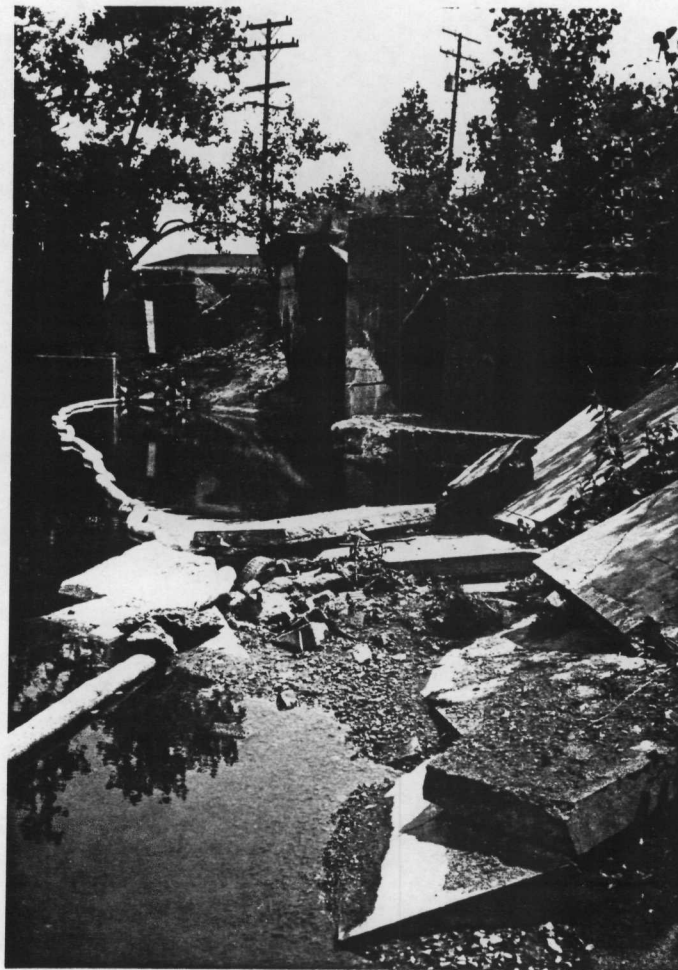
Location: SWMU 2

Date: 6/25/92



Photograph No. 3
 Orientation: West
 Description: API Separator undercut by Big Creek

Location: SWMU 2
 Date: 6/25/92



Photograph No. 4
 Orientation: Southeast
 Description: API Separator in background to the right

Location: SWMU 2
 Date: 6/25/92



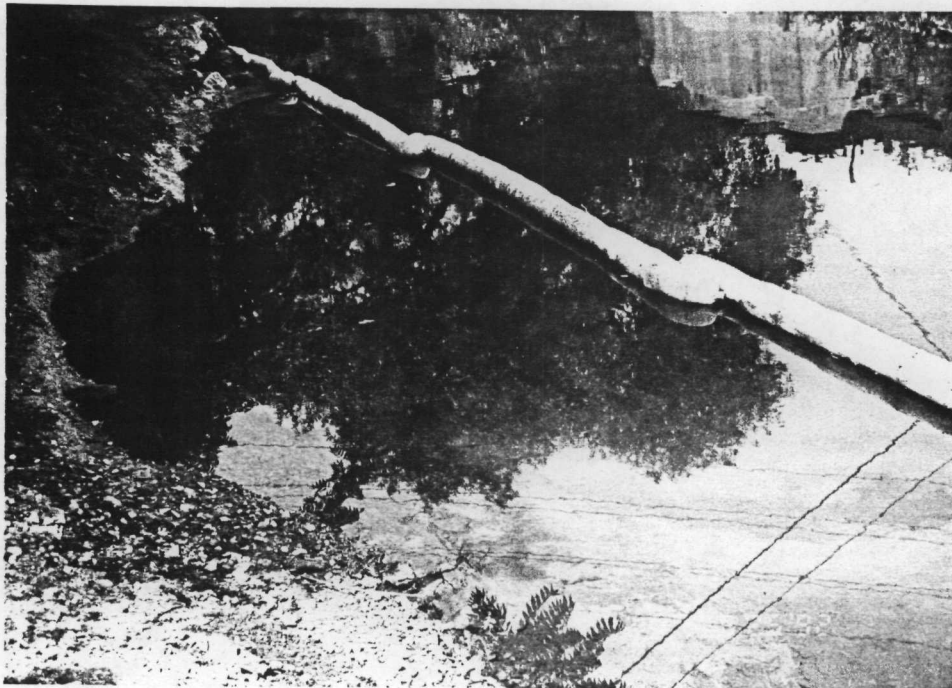
Photograph No. 5

Orientation: West

Description: Approximate former location of Sludge Storage Box and Waste Oil Recycling System

Location: SWMUs 3 and 4

Date: 6/25/92



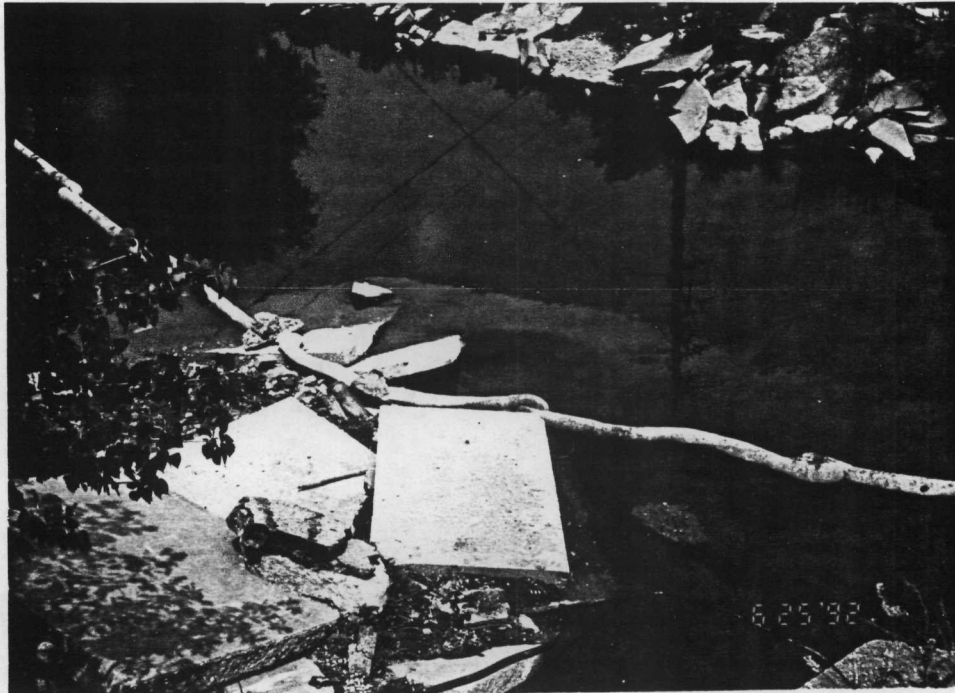
Photograph No. 6

Orientation: North

Description: Oil sheen on surface of Big Creek near oil seep

Location: AOC 1

Date: 6/25/92



Photograph No. 7
Orientation: Northeast
Description: Oil sheen on outside of floating oil booms

Location: AOC 1
Date: 6/25/92

ATTACHMENT C
VISUAL SITE INSPECTION FIELD NOTES

6/25/92 ①)

Research Oil - Valley Road PA/VSI

1:00 PM, 70's, cloudy

Waste Oil Recycling

1° settling

local industry

Steel mills, auto manufacturing

Shop oil, machine oil

Transformer oil

1954 → 1980/1981

activity stopped by 1/81

Receive oil by truck pumped into
8 storage tanks

~ 6 employees worked at the facility

Since 1981 the neighbor is using

the property to park trucks

Trucking Company = Ohio Transport Corp.

②

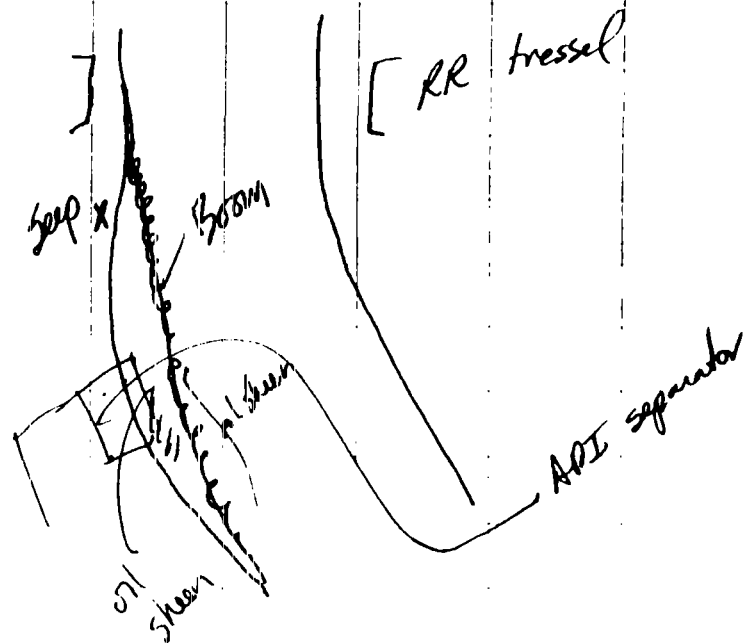
Big Creek

Observe oil seep area

There is an oil sheen
outside the oil boom - Don says

This has to be from up river because
the boom is in place

OEPA is asking for interim
action to stop seep



③

Current site has about 8-10
feet of fill. The original facility
was in a depression

Received draft findings and orders of
OEPA for interim RA.

Never any USTs

Oil booms put in this spring
new booms put in every 2 weeks

Ohio DOT has plans to put in a
road ~~between~~ Jennings Freeway Extension
that will go completely over the site

3 wells on-site and 2 are usable
will give us the well logs

(4)

All wastewater from the facility went to API separator before going to POTW

Charles Carder former superintendent of facility

Waste storage tanks on RR lines in a diked area ~ 4' high

Surface between tanks was concrete and concrete (B-19) mix

API was plumbed through sump to treatment bldg

(5)

treated oil with H_2SO_4 to break emul. sludge stored in a metal square box 2500 gallons of sludge (Box D)

Filter cake of filters in treatment was mixed with acid sludge to be solid

Also took oil for casing companies Transform for Wing Electric Co's 74-75

A - oil to treatment
water to API

B - inlets - no waste separation

(6)

PCB oil for wing was clean
(99% clean) was mixed hydraulic
light oil to make transmission fluid
for tanks

trough caused tank clean out
to pump before API
possible contamination source of
spills

storm water
trough took runoff. ~~was not~~
and drainage of diked areas
in theory no PCBs in diked area
but no one knows for sure

could be source of seep
facility was in a depression, ground
would flood on occasion.

(7)

laboratory, just did routine oil
tests.

No surface soil was removed
during closure. Some tanks were
taken to new facility (4) the
remainder were cut up and scragged.

Final closure plan submitted in
3/82, approved in 7/82 but
by 3/82 the site was closed,
tanks removed, and site filled.
Research oil will look in their files
Mr. Carter is not sure.

New Facility in 1980 was still being
built. on-line in summer of 1981
This is when all facility stopped.
81-82 winter is when tanks
were removed.

⑧

By summer of 1882 the site
was filled and completely
closed.

Wells were put in before the
fill and subsequently built up
(extended).

old age home across Valley Road
up hill to the south ~ .25 mile
homes within .5 - 1.0 mile to
north and south.

River is .5 mile east

Immediate area is industrial

Water was always for city of Cleveland
Don't know of any GW wells in area

⑨

leave site @ 3:00

~~NSK
6/25/92~~